

Survey Methodology - FY 1996

(Source: E.D. Tabs: Public Libraries in the United States: FY 1996)

Survey Universe

The respondents for this report were the 8,946 public libraries identified in the 50 states and the District of Columbia by state library agencies. Although data were not systematically collected from public libraries on Native American reservations, Native American Tribal Government was added as a reporting category for type of local government structure, beginning with the FY 1993 survey. A total of 21 public libraries were reported in this category in FY 1996. Data were not collected from military libraries that provide public library services or from libraries that serve the residents of institutions.

Survey Response

Unit response. A total of 8,782 of the 8,946 public libraries responded to the Public Libraries Survey, for a unit response rate of 98.2 percent. Respondents to the survey are defined as public library administrative entities for which population of the legal service area was reported (an item provided by the state data coordinator) and which responded to at least three of the five following survey items: total paid employees, total income, total operating expenditures, book/serial volumes, and total circulation.

Item response. Items with response rates below 100 percent include imputations for nonresponse. Item response rates are included in the tables in this report. NCES statistical standards specify that items with a response rate of less than 70 percent should not be used in analysis. For national totals, item response rates did not fall below 70 percent for any items in this report. For state totals, response rates fell below 70 percent in nine states for a few items in this report (library visits, reference transactions, circulation of children's materials, and children's program attendance). These data have been suppressed from the tables and replaced with an "(S)". In some cases, one or more states did not collect any data on an item (i.e., the state was a total nonrespondent to the item). A single dash was used in the tables to identify data items with a zero percent response rate.

Percentages Reported on Tables

Percentages rather than raw numbers are used in many of the table distributions in order to provide a clearer perspective on the patterns in the data. To obtain a desired value on a percentage distribution table (e.g., table 10), multiply the percentage for the item by the total associated with the item (the total may be on a different table) and divide by 100. Percentage distributions may not sum to 100 due to rounding.

Paid Staff (Full-Time Equivalent)

Paid staff were reported in full-time equivalents (FTEs) (tables 8 through 9A). To ensure comparable data, 40 hours was set as the measure of full-time employment, and a methodology for calculating FTEs was provided to respondents. Respondents were instructed to compute FTEs of part-time employees as the total number of hours worked per week by part-time employees in each category divided by the 40-hour measure of FTE (e.g., 60 hours per week of part-time work divided by the 40-hour measure equals 1.50 FTE's). Data were reported to two decimal places.

Data Collection and Use of Technology

The FY 1996 Public Libraries Survey was mailed to the states in mid-June 1997 and had a due date of October 31, 1997. The last state submission was received in early March of 1998. States reported their data using a personal computer software known as DECPLUS (Data Entry Conversion, Public Library Universe System) provided by NCES. DECPLUS permits direct data entry or the import of data from machine-readable files (e.g., Lotus 1-2-3, dBASE, or ASCII). Data reported on this survey are usually only part of the data most states collect from their local public libraries. Most states collect data from their public libraries using paper forms, rather than electronically.

Editing

State level. The DECPLUS software has an edit check program that generates on-screen warnings during the data entry/import process, enabling the respondent to review their data and correct many errors immediately. Following data entry/import, the respondent can generate an on-screen or printed edit report for further review and correction of their data before submitting the final file to NCES. Four types of edit checks were performed:

1. Relational edit checks. A data consistency check between related data elements. For example, an error message is generated if the number of ALA-MLS Librarians is greater than Total Librarians.
2. Out-of-range edit checks. A comparison of data reported for an item to the "acceptable range" of values. Performed on current-year and historical (current-year vs. past-year) data. For example, an error message is generated if average Public Service Hours per outlet per week is less than 10, or if Total Circulation reported this year is not within $\pm 5,000$ or $\pm 25\%$ to -10% of last year's value for Total Circulation.
3. Arithmetic edit checks. An arithmetical accuracy check of a reported total and its parts to the generated total. For example, an error message is generated if Total Operating Income is not equal to the sum of its parts (Local Government Income, State Government Income, Federal Government Income, and Other Income).
4. Blank, zero, or invalid data edit checks. A check of reported data against acceptable values. For example, an error message is generated if Book/Serial Volumes is 0 or blank.

Respondents also used DECPLUS to generate state summary tables of their data, corresponding to the tables in this report, and single-library tables, showing data for individual public libraries. States were encouraged to review the tables for data quality before submitting their final data to NCES. States submitted their final data with a signed form from the Chief Officer of the State Library Agency, certifying the accuracy of their data.

National level. NCES and the U.S. Bureau of the Census (the data collection agent for the survey) reviewed and edited the state data submissions, working closely with the State Data Coordinators and the FSCS Steering Committee.

Imputation

Data are imputed for nonresponding libraries, with the exception of the new items on electronic technology added to the FY 1995 survey. These items will be imputed on the FY 1997 data file.

The following strategies were used to impute data for libraries that did not respond in 1996:

- A. For libraries that responded in 1995 but not 1996 (or in 1994 but not in 1995 or 1996):
 1. All libraries, including nonresponding libraries, were sorted into imputation cells based on the region and size of population served.
 2. Average changes in values of data were calculated for institutions that had reported in both 1995 and 1996 (or in both 1994 and 1995).
 3. The average changes computed in step 2 were applied to the 1995 data (or to the 1994 data) of 1996 nonrespondent libraries to obtain an estimate for 1996.

This method was used for imputing audio, bookmobiles, book/serial volumes, branches, centrals, librarians, ALA-MLS librarians, other operating expenditures, reference transactions, salaries,

subscriptions, public service hours, total circulation, total staff expenditures, total collection expenditures, total paid employees, total operating expenditures, and library visits.

4. Employee benefits were derived by subtracting salaries from the estimated total staff expenditures determined in step 3.
5. Total operating expenditures were derived by summing total collection expenditures, total staff expenditures, and other operating expenditures estimated in step 3.
6. For income variables (total income and income from federal, state, and local government sources), both responding and nonresponding libraries in an imputation cell were arranged in decreasing order of size of population served. A growth rate was determined by calculating the growth of the next smallest library to the nonresponding library that had data for both 1995 and 1996 (or 1994 and 1995). This growth rate was applied to the nonresponding library's 1995 (or 1994) data. If no data were available in 1995 for the next smallest library, the growth rate was assumed to be 1.00.
7. Other income was derived by subtracting income from federal, state, and local sources from total income.
8. Children's program attendance was estimated by multiplying the current-year total library visits by the prior-year ratio of children's program attendance to total library visits.
9. Children's circulation was estimated by multiplying the current-year total circulation by the prior-year ratio of children's circulation to total circulation.

B. For libraries with no data in 1994, 1995 or 1996:

1. The mean of the imputation cell was calculated for all libraries that responded in 1996. The cell mean was adjusted for the size of a nonresponding library by multiplying it by the ratio of the nonrespondent's total population served to the mean size of population served for all responding libraries.

This method was used for imputing audio, bookmobiles, book/serial volumes, branches, centrals, librarians, ALA-MLS librarians, other operating expenditures, reference transactions, salaries, subscriptions, public service hours, total circulation, total staff expenditures, total collection expenditures, total paid employees, operating expenditures, library visits, total income, and income from federal, state, and local sources.

2. To impute total library visits, library visits was summed over all responding libraries in an imputation cell, as was the population served. The ratio of total library visits to total population served was multiplied by the nonrespondent's population value to estimate the nonrespondent's library visits.
3. Children's program attendance was estimated using the method described in step 2 where the ratio of total children's program attendance to total library visits for the responding libraries in an imputation cell was multiplied by the nonrespondent's current-year library visits.
4. Children's circulation was estimated by calculating the ratio of children's circulation to total circulation for the responding libraries in an imputation cell and multiplying the ratio by the current-year total circulation of the nonresponding library.
5. Employee benefits were derived by subtracting salaries from the estimated total staff expenditures determined in step 1.
6. Total operating expenditures were derived by summing total collection expenditures, total staff expenditures, and other operating expenditures estimated in step 1.

C. For all non-responding libraries:

1. Capital outlay was derived by imputing total expenditures (a derived variable which is the sum of total collections expenditures, total staff expenditures, other operating expenditures, and capital outlay) and subtracting total operating expenditures in order to get capital outlay. If the derived capital outlay had a negative value, it was changed to zero, total operating expenditures were changed to equal total expenditures, and total collection expenditures, total staff expenditures, and other operating expenditures were adjusted so that the sum would equal total operating expenditures.
2. The mean of the imputation cell was used to estimate videos and interlibrary loans. The cell mean was adjusted for the size of a nonresponding library by multiplying it by the ratio of the nonrespondent's total population served to the mean size of population served for all responding libraries.

Caveats for Using These Data

Using the Data to Make Comparisons

The FY 1996 (and FY 1995) data are imputed for nonresponse. In prior years, the data were based on responding libraries only, and the percentage of public libraries responding to a given item varied across state, ranging from 0 to 100 percent. Therefore, caution should be used in comparing FY 1996 (and FY 1995) data to prior-year data. Work is in progress to impute data for FY 1992 to FY 1994.

Because of state differences in reporting periods (see table below) and adherence to survey definitions, state comparisons should be made with caution. The District of Columbia, while not a state, is included in this report. Special care should be used in comparing data for the District of Columbia with state data. Caution should also be used in making comparisons with the state of Hawaii, as Hawaii reports only one public library for the state.

Reporting Period

One methodological issue in using these data is the time period covered by the data. The FY 1996 Public Libraries Survey requested data for state fiscal year 1996. In some states, the fiscal year reporting period varies among localities. In such cases, the state was requested to report the earliest starting date and latest ending date reported to them by their public libraries. Therefore, the reporting period for some states spans more than a 12-month period. However, in these states, each public library provided data for a 12-month period. Collectively, the FY 1996 data span the time period of January 1994 to December 1996. A total of 10 different reporting periods were used by the states (see table below).

States by Reporting Period

07/95 to 06/96		01/96 to 12/96		Other
AK	NM	AR		01/94 to 11/96: ME
AZ	NV	CO		11/94 to 09/96: MI
CA	OK	IN		01/95 to 06/96: IL, PA
CT		KS		01/95 to 07/96: VT
DE	RI	LA		01/95 to 12/96: NE, TX
GA	SC	MN		03/95 to 12/96: NY
HI	TN	MO		07/95 to 12/96: NH, UT
IA	VA	ND		10/95 to 09/96: AL, DC, FL, ID, MS
KY	WV	NJ		
MA	WY	OH		
MD		SD		
MT		WA		
NC		WI		

Definitions

The FY 1996 Public Libraries Survey collected information on 50 items for each public library (38 basic data items and 12 library identification items); 12 items for each public library service outlet; and four items from each state library on state characteristics of the data submission.¹ The survey definitions are included in Appendix B. The definitions used by some states in collecting data from their public libraries may not be consistent with the definitions on the Public Libraries Survey conducted by NCES. The NCES *Report on Coverage Evaluation in the Public Library Statistics Program* (NCES 94-430) and

¹These items were the reporting period starting date and ending date, the official state population estimate, and the total unduplicated population of legal services areas.

Report on Evaluation of Definitions Used in the Public Library Statistics Program (NCES 95-430)
address issues of consistency of definitions among states.

Public library. The Public Libraries Survey uses the following definition of a public library: “A public library is an entity that is established under state enabling laws or regulations to serve a community, district, or region and that provides at least the following: 1) an organized collection of printed or other library materials, or a combination thereof; 2) paid staff; 3) an established schedule in which services of the staff are available to the public; 4) the facilities necessary to support such a collection, staff, and schedule; and 5) is supported in whole or in part with public funds.”

Library visits and reference transactions. Public libraries provided annual library visits and annual reference transactions, based on actual counts, if these data were available. Otherwise, annual estimates were provided, based on a count taken during a typical week in October, multiplied by 52. For more information see Appendix B.

Population of Legal Service Area

There are significant methodological differences in the ways states calculate their population of legal service areas and their total unduplicated population of legal service areas. The time periods for which these population counts are made also vary. The total population of legal service area for all public libraries in a state may, in some cases, exceed the state’s actual population or the state’s total unduplicated population of legal service areas because adjacent public libraries may count the same population. For example, a county library and a city library within the county may both receive income from the same city, so both may serve and count the same population.

If a state’s total population of legal service areas exceeds either their state population or their total unduplicated population of legal service areas, the state has *overlapping* service areas. A total of 27 states reported overlapping service areas (Appendix C). Although West Virginia’s total population of legal service area exceeds the total unduplicated population of legal service areas, the state does not have overlapping service areas. The state reports the population of legal service area for Old Charles Town Library but excludes the population from its total unduplicated population because the library does not receive state aid. In the remaining states and the District of Columbia, the total population of legal service areas was equal to the total unduplicated population of legal service areas.

In order to do meaningful analysis of data based on population of legal service areas, such as total circulation per capita, the data for population of legal service area were adjusted to eliminate duplicative reporting. The data file contains a derived value, *the unduplicated population of legal service area for each library*, for such analysis. This value was calculated by prorating each library’s population of legal service area to the total population of legal service areas for the state, and applying the ratio to the state’s total unduplicated population of legal service areas. Table 1 provides the population of legal service area and total unduplicated population of legal service areas for each state. Note: The unduplicated population data provided by the states may vary from that provided by sources using standard methodology (e.g., U.S. Bureau of the Census). The populations of unserved areas were not included in this figure.

Appendix A

History of the Federal-State Cooperative System (FSCS) for Public Library Data

In 1985, a pilot project to standardize the collection of public library data by State Library Agencies in 15 of 50 states and the District of Columbia, was developed cooperatively by the National Center for Education Statistics (NCES) and the American Library Association (ALA) and jointly funded by NCES and the U.S. Department of Education's Library Programs (LP) office. The resulting report recommended expansion to all 50 states and the District of Columbia. A task force was formed with the goal of developing a comprehensive national system of data on the status of U.S. public libraries. The legislative mandate for collecting public library statistics was included in the Hawkins-Stafford Elementary and Secondary School Improvement Amendments of 1988 (PL 100-297). Section 406, subparts a–g, mandated the development and support of a voluntary Federal-State Cooperative System (FSCS) for the annual nationwide collection and dissemination of public library data. This has since been superseded by the National Education Statistics Act of 1994 (PL 103-382) which mandates NCES to collect library statistics.

FSCS is a working network, allowing for close communication with the states through State Data Coordinators, appointed by the Chief Officers of State Library Agencies (COSLA). Beginning in 1993, the following outlying areas joined FSCS: Guam, Northern Marianas, Palau, Puerto Rico, and the Virgin Islands. The states and outlying areas support the activities of FSCS at the state level. NCES provides the financial support for FSCS activities at the Federal level including sponsoring interagency agreements or contracts with U.S. Bureau of the Census, National Commission on Libraries and Information Science (NCLIS), Westat, and others for the work of FSCS. NCES also works cooperatively with COSLA, ALA, the Institute of Museum and Library Services, the National Institute on Postsecondary Education, Libraries, and Lifelong Learning (PLLI), and the National Library of Education, all of whom have made significant contributions. The FSCS Steering Committee, with representation by State Data Coordinators, COSLA, ALA, and other public library constituents, is active in the development of Public Libraries Survey data elements, data collection software, table design, analysis, dissemination, and training. In addition, FSCS has assigned each state a mentor from the FSCS Steering Committee, to supplement the technical assistance to states provided upon request, voluntarily by a number of State Data Coordinators and by NCES staff and contractors. Technical assistance can range from a quick telephone inquiry to completing the data collection on-site.

The Public Libraries Survey is an example of the synergy that can result from combining federal and state cooperation with state-of-the-art technology. This survey was the first national NCES data collection in which the respondents supplied the information electronically and in which data also were edited and tabulated completely in machine-readable form. Opportunities for expanded electronic data collection from states are being tested in the Public Libraries Survey. For example, some data collection is being done via the Internet. Twelve states submitted FY 1996 data electronically to the Census Internet site or as an attachment to an e-mail message. Beginning in 1996, with the FY 1994 data, NCES also implemented an early release policy for FSCS data, which makes preliminary, but state-authorized data, available over the Internet until it is replaced with the final data which has been edited and adjudicated by NCES.

The Public Libraries Survey collects identifying information on all known public libraries and their service outlets, all library agencies, and some library systems, federations, and cooperative services. This universe file is now available for use in drawing samples for special surveys on topics of interest about public libraries. A historical change tracking mechanism was established beginning with DECPLUS (Data Entry Conversion, Public Library Universe System). Closings, additions, and mergers of public libraries and public library service outlets, for example, are tracked in a historical file as the user enters data.

Plans for the Public Libraries Survey

NCES plans to continue the Public Libraries Survey as an annual survey. The FY 1997 survey was mailed in May 1998, and had a due date of August 15, 1998. The data are scheduled for release in late Fall 1999.

Several analytical projects are currently underway. NCES sponsored a project through the American Institutes for Research that developed and compared two approaches to measuring inflation in public libraries, an input cost index and a cost of services index. A report of the project was published in 1998. NCES is exploring the potential of geographic mapping for public libraries. In September 1996, NCES sponsored a two-year project through Westat, Inc. to develop the capability to link census demographic data with Public Libraries Survey data through geographic mapping software.

Also in 1998, the American Institutes for Research initiated a review of the content and comparability of NCES's six library surveys. The resulting report will be a first step in assessing the potential for a more integrated approach to the library surveys, including determining the prospects for sharing and comparing information across surveys to address key policy issues.

The Public Libraries Survey began imputing data for nonresponding libraries in FY 1995. NCES also plans to impute the FY 1992 through FY 1994 data and release it on the NCES World Wide Web site in 1999. The release will also include a trend analysis of about 15 items and software for customizing tabulations and peer comparisons.

In 1998, NCES and PLLI published a *Statistics in Brief: How Does Your Library Compare?* by Keri Bassman of the U.S. Department of Education. The report categorized the almost 9,000 public libraries in the public library data set into peer groups based on size of population of the legal service area and total operating expenditures. These peer groups were controlled for variability in library size. Once libraries were assigned to peer groups based on these two variables, comparisons of service performance were made.

A fast-response survey on the topic of public library programming for adults, including adults at risk, is under way. Westat, Inc. is conducting the survey. NCES, PLLI, and the National Library of Education are supporting and/or working on this project.

Public library questions are also being included as parts of other NCES surveys. For example, in 1996 questions about frequency of use and the purposes for which households use public libraries were included on an expanded household screener for the NCES National Household Education Survey (NHES). Over 55,000 households nationwide were surveyed in such a way as to provide state- and national-level estimates on library items. The study was completed in 1996 with the data available as of July, 1997 on CD-ROM. FSCS also plans to include some library oriented questions on their new Early Childhood Longitudinal Survey. Questions were field tested in 1997. Data collection is scheduled for 1998 and 1999, with data release scheduled for 2000.

NCES has also fostered the use and analysis of Public Libraries Survey data. The Data Use Subcommittee of the FSCS Steering Committee has been addressing the dissemination, use, and analysis of Public Libraries Survey data. Data dissemination has been broadened with electronic release of current and back year data and E.D. TABS on Internet.